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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,238	12/07/2001	Miriam G. Blatt	03226.073001;P5521	5843

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ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/010,238	BLATT ET AL.
	Examiner	Art Unit	
	Thomas H. Stevens	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 March 2006</u>.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3,5-8 and 10-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5-8 and 10-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-13 were previously examined.

2.   Claims 4,9 are cancelled.

3.   Claims 14-16 were added.

4.   Claims 1-3,5-8,10-16 were examined.

Section I: Final Rejection (4th Office Action)

Claim Objections

5.   Claims 2, 14-16 are objected because of the following informalities:

- Claims 2 and 6 line 2, states "the step for generating summary data"; the Office

  suggest deleting "step for".

- Claims 14-16: acronym SCD is undefined.

Applicant should refer to these issues as examples and initiate all the necessary

corrections to eliminate the claim objects. The claims have been treated on their merits

as best understood by the examiner.

Claim Interpretation

6.   Office personnel are to give claims their **"broadest reasonable interpretation"**

in light of the supporting disclosure. *In re Morris,* 127 F.3d 1048, 1054-55, 44 USPQ2d

1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited

in the claim are not read into the claim. *In re Prater,* 415 F.2d 1393, 1404-05, 162

USPQ 541, 550-551(CCPA 1969). See *also In re Zletz,* 893 F.2d 319, 321-22, 13

USPQ2d 1320, 1322(Fed. Cir. 1989) ("During patent examination the pending claims

must be interpreted as broadly as their terms reasonably allow") .... The reason is

simply that during patent prosecution when claims can be amended, ambiguities should

be recognized, scope and breadth of language explored, and clarification imposed ....

An essential purpose of patent examination is to fashion claims that are precise, clear,

correct, and unambiguous. Only in this way can uncertainties of claim scope be

removed, as much as possible, during the administrative process. The limitation of

"characteristic factors" is defined within the specification as peak, avg., low power

values or any other user defined terminology (specification: pg. 2, paragraph 004, lines

13-14).

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

8.   Claims 14-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claims contains subject matter,

which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventors, at the time the application was filed,

had possession of the claimed invention. The acronym "SCD" is undefined within the

original disclosure.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
       obviousness or nonobviousness.

11.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

12.   Claims 1-3, 5-8,10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bogliolo et al., ("Gate-Level Power and Current Simulation of CMOS Integrated

Circuits" (1997)) (hereafter Bogliolo) in view of Hurd (US Patent 6,125,334).

Bogliolo discloses a new gate-level approach to power and current simulation

(abstract); but doesn't teach power value data (Hurd: column 1, line 12) for each cycle

in relation to power data. Hurd teaches a method for determining the power   .

consumption of an integrated circuit for each power cycle (Hurd: abstract). Both Bogliolo

and Hurd are analogous art since both teach the simulation of chip circuitry.

Therefore it would have been obvious to one of ordinary skill in the art at the time

of invention was made to utilize power consumption determination method of Hurd in

the power and current gate-level simulation method of Bogliolo since Hurd teaches a

method to provide a way of determining the power consumption of an integrated circuit,

on a module-by-module and cycle-by-cycle basis, providing visibility into the integrated

circuit not heretofore provided (Hurd: column 12, lines 36-41).

Claim 1. A method for analyzing a power modeling simulation (Bogliolo: left column,

introduction, line 6), comprising: receiving simulated power value data (Hurd: column 1,

line 12) from the power modeling simulator (Bogliolo: pg. 484, left column 3rd

paragraph), wherein the data comprises at least one type of power values (Bogliolo: pg.

484, table 1, "power average") selected from MAX, (Hurd: Table 2, "MIN, MAX")

TYP,MIN, and TypMax; generating a set of summary data (Bogliolo: pg.475, right

column, 3rd paragraph) from the power value data; and reporting the summary data

wherein the summary data include at least one type selected from single-cycle

summary data (Hurd: table 2), multi-cycle summary data, and multi-cycle derivative

data, and wherein each type of the summary data comprises at least one characteristic

factor (See claim interpretation and Bogliolo: pg. 484, table 1, "average power").

Claim 2. The method of claim 1, wherein: the step of generating summary data includes generating multi-cycle summary data comprising: calculating a value of a single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph), wherein the single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) is a derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) of two particular power data in a set of successive cycles (Bogliolo: pg.475, right column, 3rd paragraph).

Claim 3.   The method of claim 2, wherein the single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) is a peak single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph).

Claim 5. A method of analyzing power modeling simulation (Bogliolo: left column, introduction, line 6), for designing a chip comprising: obtaining a plurality of power value data (Hurd: column 1, line 12) from a power modeling simulator, wherein the plurality of power values comprises at least one type of power value selected from MAX, (Hurd: Table 2, "MIN, MAX") TYP, MIN, and TypMax; generating a set of summary data reporting the data as parameter for chip design, wherein the summary data include at least one type selected from single-cycle summary data (Hurd: table 2), multi-cycle

summary data, and multi-cycle derivative data, and wherein each type of the summary

data comprises at least one characteristic factor (See claim interpretation and Bogliolo:

pg. 484, table 1, "average power").

Claim 6. The method of claim 5, wherein the step for generating summary data

comprises: calculating a multiple-cycle (Bogliolo: pg.475, right column, 3rd paragraph)

power average, wherein the multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph)

power average (Bogliolo: pg. 485, left column, 2nd paragraph) is an average of the

power value data (Hurd: column 1, line 12) over a plurality of cycle (Bogliolo: pg.475,

right column, 3rd paragraph).

Claim 7. The method of claim 6, wherein a length of the plurality of cycles (Bogliolo:

pg.475, right column, 3rd paragraph) is fixed.

Claim 8. The method of claim 6, wherein generating summary data further comprises:

calculating a peak value of the multi-cycle (Bogliolo: pg.475, right column, 3rd

paragraph) power average.

Claim 10. A method of data analysis for a power modeling simulation (Bogliolo: left

column, introduction, line 6), comprising: obtaining a plurality of power value data (Hurd:

column 1, line 12)from the power modeling simulator wherein the power value data

comprises at least one type of power value selected from MIN, TYP, MAX, (Hurd: Table

2, "MIN, MAX") and TypMax; (Bogliolo: pg. 484, left column 3rd paragraph); generating

a set of summary data from the power value; analyzing the summary data according to

a design requirement (Hurd: table 2, user views the data); and reporting a result of the

analyzing step; wherein the summary data include at least one type selected from a

single-cycle summary data (Hurd: table 2), multi-cycle summary data, and multi-cycle

derivative data, and wherein each type of the summary data comprises at least one

characteristic factor (See claim interpretation and Bogliolo: pg. 484, table 1, "average

power").

Claim 11. The method of claim 10, further comprising: calculating a value of the multi-

cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the

suggestion of derivatives: pg.483, left column, 2nd paragraph).

Claim 12. The method of claim 11, further comprising: setting a threshold (Bogliolo: the

suggestion of threshold: pg.480, left column, 2nd paragraph) value as a reference value

for determining the end of a current multi-cycle (Bogliolo: pg.475, right column, 3rd

paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd

paragraph); calculating a single-cycle (Bogliolo: pg.475, right column, 3rd paragraph)

derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph);

calculating a derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd

paragraph) of a start value and an end value of associated power data in the current

multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the

suggestion of derivatives: pg.483, left column, 2nd paragraph); calculating a ratio (Bogliolo: the suggestion of the size of the ratio between input and outputs: pg.475, right column, 3rd paragraph) of the value of the single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) over the value of a derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) of the start value and the end values of associated power data derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) when the direction of the current multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) changes; and generating the value and its cycle (Bogliolo: pg.475, right column, 3rd paragraph) of the multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) when the ratio (Bogliolo: the suggestion of the size of the ratio between input and outputs: pg.475, right column, 3rd paragraph) becomes larger than the threshold (Bogliolo: the suggestion of threshold: pg.480, left column, 2nd paragraph) value, wherein the single-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) is a derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) of two particular power data in successive cycles (Bogliolo: pg.475, right column, 3rd paragraph).

Claim 13. The method of claim 11, further comprising: setting a threshold (Bogliolo: the

suggestion of threshold: pg.480, left column, 2nd paragraph) value that is a reference

value for determining the end of a current multi-cycle (Bogliolo: pg.475, right column,

3rd paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column,

2nd paragraph); calculating a difference from a highest value to a current value of the

power data in the current multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph)

derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph);

calculating a difference from the highest value to a start value of the power data in the

current multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative (Bogliolo:

the suggestion of derivatives: pg.483, left column, 2nd paragraph); calculating a ratio

(Bogliolo: the suggestion of the size of the ratio between input and outputs: pg.475, right

column, 3rd paragraph) of the difference from the highest value to the current value of

the power data over the difference from the highest value to the start value of the power

data in the current multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph) derivative

(Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph) when the

direction of the current multi-cycle (Bogliolo: pg.475, right column, 3rd paragraph)

derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd paragraph)

changes; and generating the end-value and its end-cycle (Bogliolo: pg.475, right

column, 3rd paragraph) of the current multi-cycle (Bogliolo: pg.475, right column, 3rd

paragraph) derivative (Bogliolo: the suggestion of derivatives: pg.483, left column, 2nd

paragraph) when the ratio (Bogliolo: the suggestion of the size of the ratio between

input and outputs: pg.475, right column, 3rd paragraph) becomes larger than the

threshold (Bogliolo: the suggestion of threshold: pg.480, left column, 2nd paragraph)

value.

Claim 14. The method of claim 1, further comprising: applying an automatic detection

scheme to detect an end for an multi-cycle (Hurd: table 2, "plurality of cycles")

derivative, if an multi-cycle derivative is included in the summary (Bogliolo: the

suggestion of derivatives: pg.483, left column, 2nd paragraph), wherein the automatic

detection scheme is one selected from SCD/MCD, DROP/TOP, and a combination

thereof.

Claim 15. The method of claim 5, further comprising: applying an automatic detection

scheme to detect an end for an multi-cycle (Hurd: table 2, "plurality of cycles")

derivative, if an multi-cycle derivative is included in the summary (Bogliolo: the

suggestion of derivatives: pg.483, left column, 2nd paragraph), wherein the automatic

detection scheme is one selected from SCD/MCD, DROP/TOP, and a combination

thereof.

Claim 16. The method of claim 10, further comprising: applying an automatic detection

scheme to detect an end for an multi-cycle (Hurd: table 2, "plurality of cycles")

derivative, if an multi-cycle derivative is included in the summary, (Bogliolo: the

suggestion of derivatives: pg.483, left column, 2nd paragraph) wherein the automatic

detection scheme is one selected from SCD/MCD, DROP/TOP, and a combination
thereof.

Section III: Response to Applicants' Arguments (3rd Office Action)

101/102(b)

13.   Applicants are thanked for addressing these issues. Rejections under 35 USC §

101 and 102(b) are withdrawn. New rejections have been made under 35 USC § 103.

Conclusion

14.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.
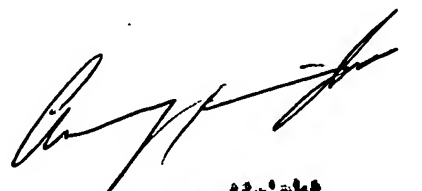
Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. Paul Rodriguez 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

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TS

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